

L'OREAL SA \*EP 1040818-A1  
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 Composition for dyeing keratinous fibers includes two or more  
 bases and at least one pyrazolo-[3,2-c]-1,2,4-triazoles coupler (Frn)  
 C2001-086542 R(AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI  
 LT LU LV MC MK NL PT RO SE SI)  
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 2000.02.29 2000EP-400545

**NOVELTY**

A composition for dyeing keratinous fibers, particularly human hair, comprises a primary base selected from paraphenylene diamine and paratoluene diamine, one or more secondary base selected from N,N-bis-(β-hydroxyethyl)paraphenylene diamine, pyrazolo-[1,5-a]-pyrimidines and para-aminophenols and at least one pyrazolo-[3,2-c]-1,2,4-triazoles coupler (I).

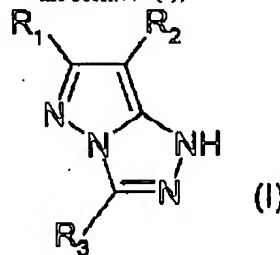
**DETAILED DESCRIPTION**

A composition for dyeing keratinous fibers, particularly human hair, comprises:

- (a) a primary base selected from paraphenylene diamine and paratoluene diamine;

U(8-B0) C(0-U3, 0-U8, 0-U9, 10-D1A2, 10-D1A4, 10-B3A, 26-A3, 26-C)

- (b) one or more secondary base selected from N,N-bis-(β-hydroxyethyl)paraphenylene diamine, pyrazolo-[1,5-a]-pyrimidines and para-aminophenols;  
 (c) at least one pyrazolo-[3,2-c]-1,2,4-triazoles coupler represented by the formula (I);



R<sub>1</sub>, R<sub>3</sub> = hydrogen, halogen, nitro, cyano, alkoxy, aryloxy, amino, alkylamino, acylamino, carbamoyl, sulfonamido, sulfamoyl, imido, alkylthio, arylthio, aryl, alkoxy-carbonyl, an optionally

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branched 1-20C alkyl; aryl or a 5-6 membered heterocycle featuring a nitrogen, oxygen and/or sulfur atom. The alkyl, aryl and heterocyclic groups can be substituted in one or two positions by radicals selected from halogen, nitro, cyano, alkoxy, aryloxy, amino, alkylamino, acylamino, carbamoyl, sulfonamido, sulfamoyl, imido, alkylthio, arylthio, aryl, alkoxy-carbonyl and acyl;

R<sub>2</sub> = hydrogen, halogen, acetyl-amido, alkoxy, aryloxy, acyloxy, arylthio, alkylthio, heteroarylthio, heteroaryloxy, thiocyno, N,N-diethylthiocarbonylthio, dodecylthio, carbonylthio, benzenesulfonamido, N-ethyltoluene sulfonamido, pentafluorobutanamido, 2,3,4,5,6-pentafluorobenzamido, p-cyanophenylureido, N,N-diethyl-sulfamoylamido, pyrazolyl, imidazolyl, triazolyl, tetrazolyl, benzimidazolyl, 1-benzyl-5-ethoxy-3-hydantoinyl, 1-benzyl-3-hydantoinyl, 5,5-dimethyl-2,4-dioxo-3-oxazolidinyl, 2-oxy-1,2-dihydro-1-pyridinyl, alkylamido, arylamido or -N(R<sub>a</sub>)(R<sub>b</sub>);

R<sub>a</sub>, R<sub>b</sub> = 1-4C (hydroxy)alkyl, carboxyl or alkoxy-carboxyl.

Salts of (a), (b) and/or (c) may be used.

**USE**

For dyeing keratinous fibers, particularly human hair (claimed).

**ADVANTAGE**

The composition provides a variety of strong, longer-lasting shades.

**SPECIFIC COMPOUNDS**

38 specific examples of the pyrazolo-[3,2-c]-1,2,4-triazoles coupler are claimed, including 3-methyl pyrazolo-[3,2-c]-1,2,4-triazole, 6-phenyl-3-ethyl-pyrazolo-[3,2-c]-1,2,4-triazole and 6-carboxy-3-phenyl-pyrazolo-[3,2-c]-1,2,4-triazole.

**EXAMPLE**

A dyeing composition comprised paraphenylenediamine (1 g), 3-amino-5-methyl-7-imidazolylpropylamino pyrazolo-[1,5-a]-pyrimidine-2HCl (3 g), 3,6-dimethylpyrazolo-[3,2-c]-1,2,4-triazole (1.2 g), 1-N-(β-hydroxyethyl)-4-hydroxy indole (1.2 g), ethanol (18 g) 58% aqueous ammonium thiocyanate (0.64 g), pentasodium diethylene triamine (10 g) and demineralized water (balance). The composition was applied to gray hair and rinsed off after 30 minutes to leave a red-brown color.

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**TECHNOLOGY FOCUS**

Organic Chemistry - Preferred Components: The para-aminophenol secondary base is preferably selected from para-aminophenol, 4-amino-3-methylphenol, 4-amino-3-fluorophenol, 4-amino-3-hydroxymethylphenol, 4-amino-2-methylphenol, 4-amino-2-hydroxymethylphenol, 4-amino-2-methoxymethylphenol, 4-amino-2-aminomethylphenol, 4-amino-2-(β-hydroxyethylaminomethyl)phenol, 4-amino-2-fluorophenol and/or their salts.

(a), (b) and (c) can be salts selected from sodium, potassium, ammonium or amines.

The pyrazolo-[1,5-a]-pyrimidine secondary base is preferably selected from pyrazolo-[1,5-a]-pyrimidine-3,7-diamine, 2-methyl-pyrazolo-[1,5-a]-pyrimidine-3,7-diamine, 2,5-dimethyl-pyrazolo-[1,5-a]-pyrimidine-3,7-diamine, pyrazolo-[1,5-a]-pyrimidine-3,5-diamine, 2,7-dimethyl-pyrazolo-[1,5-a]-pyrimidine-3,5-diamine, 3-amino-pyrazolo-[1,5-a]-pyrimidin-7-ol, 3-amino-5-methyl-pyrazolo-[1,5-a]-pyrimidin-7-ol, 3-amino-pyrazolo-[1,5-a]-pyrimidin-7-ol, 2-(3-amino pyrazolo-[1,5-a]-pyrimidin-7-ylamino)-ethanol, 3-amino-7-β-hydroxyethylamino-5-methyl-pyrazolo-[1,5-a]-pyrimidine, 2-(7-amino pyrazolo-[1,5-a]-pyrimidin-3-ylamino)-ethanol, 2-[(3-amino-

pyrazolo-[1,5-a]-pyrimidin-7-yl)-(2-hydroxyethyl)-amino]-ethanol, 2-[(7-amino-pyrazolo-[1,5-a]-pyrimidin-7-yl)-(2-hydroxyethyl)-amino]-ethanol, 5,6-dimethyl pyrazolo-[1,5-a]-pyrimidine-3,7-diamine, 2,6-dimethyl pyrazolo-[1,5-a]-pyrimidine-3,7-diamine, 2,5-N-7-N-7-tetramethyl pyrazolo-[1,5-a]-pyrimidine-3,7-diamine and 3-amino-5-methyl-7-imidazolylpropylamino pyrazolo-[1,5-a]-pyrimidine. Preferred Composition: The dyeing composition preferably comprises 0.005-6 wt. % of pyrazolo-[3,2-c]-1,2,4-triazole couplers. The composition additionally acid, neutral or alkaline oxidizing agents selected from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts, peracids and enzymes.

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